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Notes:

1. Untranslatable words are replaced with asterisks (* **).
2. Texts in the figure(s) are not translated and shown as is.

Translated: 03/29/38 JSI 10/14/2009

Dictionary: Last updated 08/17/2009 / Priority:

CLAIM + DETAILED DESCRIPTION

[Claim(s)]

[Claim 1]Network equipment which operates according to data for operation is equipped, An updating device for operation of network equipment provided with an electronic mail processing part which updates data for operation which received an E-mail with which said data for operation was written from a network, and was written to this E-mail to a storage part of the present data for operation.

[Claim 2]An updating device for operation of the network equipment according to claim 1 in which said data for operation is a printing job program.

[Claim 3]An updating device for operation of the network equipment according to claim 1 in which said data for operation is function-settings data.

[Claim 4]A printer provided with an electronic mail processing part which updates data for operation which was a printer which operates according to data for operation, received an E-mail with which said data for operation was written from a network, and was written to this E-mail to a storage part of the present data for operation.

[Claim 5]The printer according to claim 4 in which said data for operation is a printing job program.

[Claim 6]The printer according to claim 4 in which said data for operation is function-settings data.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the printer using the updating device for operation and this which start the printer using the updating device for operation of network equipment, and this, for example, update the firmware of the printer as network equipment.

[0002]

[Description of the Prior Art]For example, when the firmware of a printer was upgraded, every one ROM of firmware was exchanged manually in ancient times. However, in order not to bear a worker's ** then, the method of updating the firmware loaded from the recording medium which can be carried to the firmware storage part of a printer, etc. are proposed after that.

[0003]

[Problem to be solved by the invention]However, if it was in the above-mentioned conventional example, the maintenance person in charge had to work for upgrade of firmware, or a various data setup, having had to go out there, and the labor was large.
[0004]

[Objects of the Invention]This invention improves the inconvenience which this conventional example has, and sets it as the purpose to provide the printer using the updating device for operation of network equipment and this which can update the data for operation of firmware etc. without a maintenance person in charge going out to a spot in particular.

[0005]

[Means for solving problem]In order to attain the above-mentioned purpose, [the invention according to claim 1] The network equipment which operates according to the data for operation was equipped, and the composition of having had the electronic mail processing part which updates the data for operation which received the E-mail with which the data for operation was written from the network, and was written to this E-mail to the storage part of the present data for operation is taken.

[0006]In this invention, if the E-mail which described the data for operation is transmitted to network equipment from an external terminal, the E-mail data will be received by network equipment, and the data for operation described by the E-mail will be updated by the storage part.

[0007]In the invention according to claim 2, the above-mentioned data for operation has taken the composition that it is a printing job program (firmware data).

[0008]In the invention according to claim 3, the above-mentioned data for operation has taken the composition that it is function-settings data.

[0009]It is a printer which operates in the invention according to claim 4 according to data for operation, Composition of having had an electronic mail processing part which updates data for operation which received an E-mail with which data for operation was written from a network, and was written to this E-mail to a storage part of the present data for operation is taken.

[0010]In the invention according to claim 5, the above-mentioned data for operation has taken composition that it is a printing job program (firmware data).

[0011]In the invention according to claim 6, the above-mentioned data for operation has taken composition that it is function-settings data.

[0012]Thereby, it is going to attain the purpose mentioned above.

[0013]

[Mode for carrying out the invention]Hereafter, one embodiment of this invention is described based on drawing 1 thru/or drawing 3.

[0014]The printer 8 shown in drawing 1 is network equipment which operates according to data for operation, and has equipped an updating device for operation. Composition of the updating device 9 for operation with which this printer 8 was equipped is shown in drawing 2. The electronic mail processing part 13 is provided with a function which updates data for operation which received an E-mail with which data for operation was written from a network, and was written to this E-mail to the storage part 14 of the present data for operation. In this embodiment, the above-mentioned data for operation is a printing job program (firmware program).

[0015]Hereafter, this is explained further in full detail. This embodiment will be provided

with the following if drawing 1 is referred to.

It is installed in the area A and is the terminal 1 which can send an E-mail.

LAN2 of the network in the area A.

The router 3 which enables communication to the exterior of the area A.

WAN4 of an external network, the router 5 which enables communication to the exterior of the area B, LAN6 of the network in the area B, the mail server 7 currently installed in the area B, and the printer 8 currently installed in the area B.

[0016]The printer 8 will be provided with the following if drawing 2 is referred to.

The interface part 11 which transmits and receives the data on network LAN6.

The buffer 12 which is a storage part.

The electronic mail processing part 13 which performs E-mail reception.

The storage part (printing job program store part) 14 of the printing job program which performs a printing job.

If the electronic mail processing part 13 checks whether there is any E-mail addressed to printer 8 to the mail server 7 and is in it, it will receive the data of the E-mail to the buffer 12. And the received data is changed into program execution form, and it has a function which updates a new printing job program to the storage part 14.

[0017]Next, with reference to drawing 1, drawing 2, and drawing 3, operation of this example is explained in detail.

[0018]The maintenance member in its duty which is present in the area A sends a printing job program to the printer 8 of the area B by E-mail from the terminal 1 of the area A (Step A1). A sent E-mail passes along network LAN2 of the area A, and goes into the router 5 used as an entrance of a network of the area B with the printer 8 via external network WAN4 from the router 3 used as an entrance of a network of the area A. From there, it passes along network LAN6 of the area B, and the mail server 7 is passed (Step B1). Then, if the electronic mail processing part 13 of the printer 8 is started (step B-2), it will check the mail server 7 to see the electronic mail processing part 13 has an E-mail addressed to printer 8 via the interface part 11 (Step B3). When there is an E-mail addressed to printer 8, it passes along network LAN6 and receives to the buffer 12 via the interface part 11 (Step B4). And the electronic mail processing part 13 changes received data into program execution form (step B5). And a printing job program of the storage part 14 is updated by the changed data (step B6). Then, the new printing job program of the storage part 14 is rebooted (Step B7).

[0019]On the other hand, when there is no E-mail in the printer 8, Step B4, B5, and B6 are skipped and it progresses to Step B7. After that, according to a demand, it shifts to a printing job (Step B8). Thereby, the maintenance member in its duty which is present in the area A can perform rewriting of a printing job program of the printer 8 in the area B, without going to the area B.

[0020]In order to rewrite a new program required for printing from a remote place, it goes to a spot which has a printer for program rewriting of the maintenance member in its duty, the necessity for work of rewriting a program is lost, and expense concerning these stops occurring according to this. Since it can carry out from a remote place, a program is easily rewritable efficiently quickly. The Reason is because the printer itself is rewritten considering data which reception of a flexible E-mail was possible and was received as a printing job program.

[0021]

[Other embodiments of an invention] Next, other embodiments of this invention are described in detail with reference to Drawings.

[0022]** [reference of drawing 4 / differ / it / in that this embodiment has the function-settings storage part 15 in addition to composition of the printer 8 shown by drawing 2.] Reference of drawing 5 will change data of an E-mail in that it has the processing (Step C1) which distinguishes whether it is a printing job program and whether it is function-settings data to the next step of processing (processing which receives E-mail data to the buffer 12) of Step B4 shown by drawing 3. The function-settings storage part 15 memorizes the contents of a setting of various functions (for example, paper feed tray selection, font selection, double-sided printing selection, etc.) of the printer 8. Data of the function-settings storage part 15 is sent with an E-mail from a remote place, and the printer 8 rewrites the function-settings storage part 15 of the printer 8 by receiving an E-mail. [performing processing which distinguished whether data of an E-mail is a printing job program, and whether it was function-settings data after receiving E-mail data to the buffer 12 at Step B4, and applied to each correspondingly] The maintenance member in its duty does not need to go to a spot with the printer 8, and it is not necessary to do work which changes function settings, and function settings can be changed, and it is easily efficient quickly from a remote place, and can change into a setup of a user's hope, etc. [0023]Then, operation of this embodiment is explained in detail with reference to drawing 1 and drawing 4, and drawing 5.

[0024]Since operation of Steps B1-B8 of drawing 5 is the same as that of operation of B1-B8 which were shown by drawing 3, it omits explanation. In Step A1 of this embodiment, the maintenance member in its duty which is present in the area A sets the code of function-settings data to a distinction code, and sends to the printer 8 of the area B by E-mail from the terminal 1 of the area A together with function-settings data. And processing of B4 is performed from Step B1 in the area B. And the electronic mail processing part 13 distinguishes the code in the data of the E-mail received by the buffer 12 (Step C1). And when it is a printing job program, processing of step B5 and B6 is performed. When a distinction result is function-settings data, the electronic mail processing part 13 changes the received data into a function-settings data format (Step C2). And the changed data is updated to the function-settings storage part 15 (Step C3). Processing of Step B7 and B8 is carried out after that.

[0025]When changing function settings of a printer at a user wishing etc. in this embodiment, [the maintenance member in its duty] [using an E-mail] A function-settings storage part of a printer can be rewritten from a remote place, it is not necessary to go to a spot with a printer, and a function-settings change of a printer can be made efficiently easily quickly. Since the contents of the received E-mail were provided with a function to judge a printing job program or function-settings data, the electronic mail processing part 13 can secure normal operation of a printer, even when data of different contents by E-mail is received.

[0026]In addition, since according to each above-mentioned embodiment an E-mail transmitted from a terminal was once stored in a mail server and a printer had composition which checks whether an E-mail addressed to a printer has arrived to a mail server, Even if the printer itself is the environment which did not need to have a function of a mail server, could hold down cost of the printer itself, and connected two or more

printers to a network, it is comparatively economical.

[0027] Here, in each above-mentioned embodiment, although a printer was illustrated as network equipment, other network equipment may be sufficient. Although a printing control program and function-settings data were illustrated as data for operation, they may be other data for operation.

[0028]

[Effect of the Invention] Since this invention is constituted as mentioned above and functions, according to this, network equipment is equipped with the updating device of the data for operation. Since the new data for operation which received the data for operation for updating in the form of the E-mail, and was extracted from the E-mail is updated to the storage part of the present data for operation, the data for operation of network equipment can be updated by remote control, and the labor of maintenance work can be lightened.

[Translation done.]